

Serial No. 09/253,245 Filed 02/19/1999

2

AMENDMENTS TO THE CLAIMS

- Claim 1 (Currently amended) A ~~ballistically effective~~ flexible composite comprising:
a plurality of filaments; and
a plurality of matrix islands, each of said matrix islands having an average size of less than 5 mm in a planar dimension and connecting at least two filaments so as to hold the plurality of filaments in a unitary structure;
wherein the final volume ratio of matrix islands to the plurality of filaments in the composite is approximately 0.5 or less, and wherein said composite has an SEAT value equal to or greater than 257 J-m²/Kg on impact by .38 caliber, 158 grain lead bullets.
- Claim 2 (Original) The composite of claim 1, wherein the plurality of filaments are arranged in a planar, essentially parallel array.
- Claim 3 (Original) The composite of claim 1, wherein the plurality of filaments comprises individual filaments having an average modulus of from about 300 g/denier or greater and an average tenacity of from about 7 g/denier or greater.
- Claim 4 (Previously amended) The composite of claim 1, wherein the final volume ratio of matrix islands to the plurality of filaments is approximately 0.4 or less.
- Claim 5 (Previously amended) The composite of claim 1, wherein the final volume ratio of matrix islands to the plurality of filaments in the composite is approximately 0.25 to about 0.02.
- Claim 6 (Previously amended) The composite of claim 1, wherein the final volume ratio of matrix islands to the plurality of filaments in the composite is approximately 0.2 to about 0.05.
- Claim 7 (Previously amended) The composite of claim 1, wherein the filaments are filaments selected from the group consisting of ultrahigh molecular weight polyethylene of molecular weight greater than about 500,000, polypropylene of weight average molecular weight greater than about 750,000, aramid, polyvinyl alcohol of weight average molecular weight

Serial No. 09/253,245 Filed 02/19/1999

3

greater than about 400,000, polybenzoxazole, polybenzothiazole, fiberglass, ceramic and combinations thereof.

Claim 8 (Previously amended) The composite of claim 7 wherein the plurality of filaments comprises ultrahigh molecular weight polyethylene of molecular weight greater than about 500,000.

Claim 9 (Previously amended) The composite of claim 8 wherein the polyethylene filaments have a tenacity of from about 30 g/denier or greater and a modulus of from about 1500 g/denier or greater.

Claim 10 (Original) The composite of claim 7, wherein the plurality of filaments comprise aramid.

Claim 11 (Original) The composite of claim 1, wherein the matrix islands comprise a flexible composition selected from the group consisting of elastomers, thermoplastic elastomers, thermoplastics, thermosets and combinations thereof.

Claim 12 (Original) The composite of claim 11, wherein the matrix islands comprise an elastomer.

Claim 13 (Previously amended) The composite of claim 11, wherein the elastic matrix islands comprise a combination of two or more elastomers, thermoplastic elastomers and thermoplastics.

Claim 14 (Original) The composite of claim 1, wherein the domain matrix provides a robust structure of filaments.

Claim 15 (Original) The composite of claim 1, wherein each filament within the composite contacts at least one matrix island.

Claim 16 (Original) The composite of claim 15, comprising a plurality of matrix islands in a predetermined pattern.

Claim 17 (Original) A uni-directional tape comprising the composite of claim 1.

Claim 18 (Cancelled)

Claim 19 (Original) The composite of claim 1, wherein the average size of the matrix islands is less than 3mm in a planar dimension.

Claim 20 (Original) The composite of claim 1, wherein the average size of the matrix islands is less than 1mm in a planar dimension.

Claim 21 (Cancelled)

Serial No. 09/253,245 Filed 02/19/1999

4

Claim 22 (Previously amended) The composite of claim 1, wherein the composite possess an h/l ratio of from about 0.7 or more.

Claim 23 (Previously amended) The composite of claim 1, wherein the composite possess an h/l ratio of from about 0.85 or more.

Claim 24 (Withdrawn) A method of making a composite comprising the steps of:
arranging a plurality of filaments in a fibrous web;
placing matrix islands within the plurality of filaments; and
causing each matrix island to connect at least two filaments in fixed relationship.

Claim 25 (Withdrawn) The method of claim 24, wherein said placing step comprises spraying matrix particles.

Claim 26 (Withdrawn) The method of claim 24, wherein said causing step is selected from the group consisting of applying heat, applying pressure, and a combination thereof.

Claim 27 (Currently amended) A ~~ballistically effective~~, flexible composite comprising:
multiple layers of fibrous webs; wherein each fibrous web is comprised of a plurality of filaments; and a plurality of matrix islands, each of said matrix islands having an average size of less than 5 mm in a planar dimension and connecting at least two filaments so as to hold the plurality of filaments in a unitary structure, and
wherein the final volume ratio of matrix islands to the plurality of filaments in the composite is approximately 0.5 or less and wherein said composite has a V50 value against .38 caliber, 158 grain lead bullets greater than a composite of the same areal density having a continuous polymeric matrix.

Claim 28 (Cancelled)